

## **James C. (Jim) Blair**

Retired, NASA/Marshall Space Flight Center  
Technology Trainer, AI Signal Research Incorporated  
Adjunct Professor, University of Alabama in Huntsville

James C. (Jim) Blair retired from NASA as the Director of the Structures and Dynamics Laboratory at Marshall Space Flight Center, after a 34-year career in engineering and engineering management. His educational credentials include a Bachelor of Engineering degree from Vanderbilt University (Nashville, Tennessee, 1957), and M.S. (1958) and Ph.D. (1970) degrees in Electrical Engineering, University of Tennessee, Knoxville.

Blair's professional career began as an aerosystems engineer with General Dynamics / Fort Worth, where he performed analyses and simulations of the flight control system for B-58 aircraft, including flight test verification analysis. He also contributed to the preliminary design of the F-111 aircraft flight control system and missile systems.

In 1963, Blair joined the NASA/Marshall Space Flight Center as a supervisory aerospace engineer, whose primary responsibility was planning and conducting research on advanced control systems for launch vehicle stabilization. Also, he led a program of flight mechanics studies to define the Emergency Detection System for the Saturn launch vehicles. His next responsibility was as Chief of the Optimization Theory Branch, engaged in research in optimization and control theory as applied to launch vehicles, orbital transfer vehicles, and interplanetary trajectory design.

In 1970, Blair was appointed Deputy Chief of Marshall's Astrodynamics and Guidance Theory Division where he was responsible for trajectory optimization, astrodynamics, and guidance systems for space vehicles, and extensive flight mechanics and performance analyses for the Space Shuttle concept. Beginning in 1974, as Chief of the Control Systems Division, he managed control system design and dynamics analysis for launch vehicles, spacecraft, optical fine pointing systems, propulsion systems, and turbomachinery rotordynamics. He led assessment of complex Shuttle Main Engine turbomachinery rotordynamic instabilities and fixes and planned for dormant Skylab attitude and dynamics determination with modulation to affect reentry trajectory.

In 1979, Blair was promoted to the position of Deputy Director of the Structures and Dynamics Laboratory. During his tenure as Deputy Director, Blair served a period at NASA Headquarters developing a multidisciplinary and systems technology plan for advanced space systems. He was the Deputy Manager of the Shuttle Solid Rocket Motor Redesign activity following the *Challenger* accident and served at Kennedy Space Center on the Launch Processing Support Team to assure correct and expeditious assembly of redesigned Shuttle elements for return to flight. He led a joint NASA/Air Force assessment of solid rocket motor propellant and insulation integrity issues, and chaired the committee investigating an Inertial Upper Stage failure.

As Director of the Structures and Dynamics Laboratory, Blair managed an organization of 350 to 400 engineers and technicians in the disciplines of structural design, loads, stress and durability analysis, structural testing; navigation, guidance, and control systems and dynamics; computational fluid dynamics and fluid flow testing; aerodynamics and thermal engineering; and environmental control and life support systems. For these disciplines, he

was responsible for the technical excellence of all Center projects, including launch vehicles, propulsion stages, spacecraft, and space-borne experiments. He developed and maintained a premier technical capability involving highly skilled personnel, computational capability, facilities, and equipment. While Director of the laboratory, Blair also chaired intensive independent investigations of Shuttle Solid Rocket Motor anomalies and flight safety determination and led development of a technology plan for enhanced competitiveness of the US expendable launch vehicle industry.

After his retirement from NASA, Blair has continued his active involvement in the aerospace community, first with the University of Alabama in Huntsville, and subsequently with AI Signal Research in support of the Office of Human Capital. Along with colleagues Robert S. Ryan and Luke A. Schutzenhofer, Blair provides mentoring and develops and teaches courses that transfer a legacy of engineering knowledge to today's engineers

Blair's contributions have been recognized in his selection for the Presidential Rank of Meritorious Executive – 1995, the NASA Exceptional Service Medal – 1988, and numerous NASA Group Achievement and Outstanding Performance Awards.

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